

REMARKS

Please reconsider the application in view of the foregoing amendments and the following remarks.

Status of Claims

Claims 1-7 are pending in the present application. Claim 7 has been withdrawn from consideration. Claims 1-6 are herein amended. New claims 8 and 9 have been added. No new matter has been presented.

As to the Merits

As to the merits of this case, the Examiner sets forth the following rejections:

Claims 1-4 were rejected under 35 U.S.C. 102(b) as being anticipated by **Shibayama et al.**

Claims 1-4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Crinquette et al. (4,887,941) in view of **Ohmi et al.** (6,896,490) in further view of **Ojima et al.** (2002/0197171).

Claim 5 was rejected under 35 U.S.C. 103(a) as being unpatentable over **Shibayama** or **Crinquette/Ohmi/Ojima** in view of **Baubron** (4,442,353) or **Becker** (5,584,669).

Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over **Shibayama** in view of **Miura et al.** (6,056,510).

Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over **Crinquette/Ohmi/Ojima** in view of **Miura**.

Applicants respectfully traverse each of these rejections

The claimed invention of claim 1 is an evacuation apparatus having a combination of a booster pump and a main pump. The booster pump is provided upstream of the main pump, so that the pumping speed of the main pump can be increased. With this arrangement, the evacuation apparatus can evacuate a vacuum chamber at a high pumping speed. For example, the main pump having a pumping speed ranging from 1,000 to 3,000 l/min can be increased to a pumping speed ranging from 10,000 to 50,000 l/min.

The claimed invention has a feature that *both the booster pump and the main pump have a pair of multistage pump rotors.*

Shibayama discloses a combination of a main pump 20 and an auxiliary pump 30. **Shibayama** describes that the ultimate pressure of the auxiliary pump 30 is less than 20kPa and

that the auxiliary pump 30 is a sliding vane rotary vacuum pump (Gede type), piston type, diaphragm type (membrane type), or scroll type. Applicants note that these types do not use a pair of multistage pump rotors. This description means that the auxiliary pump 30 is a small-sized pump and does not have a pair of multistage pump rotors.

Furthermore, Shibayama, Crinquette, Ohmi, Baubron, Becker and Miura, alone or in combination, do not remedy this deficit.

Newly-added claims 8 and 9 recite that the multistage Roots-type pump rotors comprises two-stage Roots-type pump rotors each having an inlet-side rotor and an outlet-side rotor, and a ratio of an axial width of the inlet-side rotor to an axial width of the outlet-side rotor is in a range of 2:1 to 10:1 (5:1 to 10:1 in claim 9). The inlet-side rotor determines a pumping speed of the booster pump, and the outlet-side rotor serves to reduce a required torque for rotating the pump rotor. Therefore this configuration with the above ratio can increase a pumping speed, while reducing the load on a motor for rotating the pump rotors.

None of the cited references teach or suggest use of a pair of two-stage Roots-type pump rotors with the above ratio in the booster pump.

In view of the foregoing, Applicants submit that the rejection under 35 U.S.C. §102 and §103 of claim 1 and its dependent claims are overcome and request that these rejection be withdrawn.

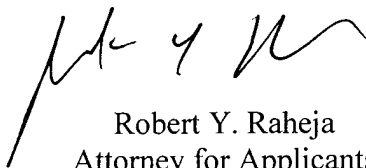
Conclusion

The Claims have been shown to be allowable over the prior art. Applicants believe that this paper is responsive to each and every ground of rejection cited in the Office Action dated September 3, 2009, and respectfully request favorable action in this application. The Examiner is invited to telephone the undersigned, applicants' attorney of record, to facilitate advancement of the present application.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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